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RESOURCE PLANNING AND MANAGEMENT GAME

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Preface

Military organizations have used military or war "games" for years to simulate actual situations. Military personnel can then test and refine their judgment by playing the games -- through this exercise they gain a better appreciation of the concept and results of decision-making.

More recently the gaming technique, as a training aid, has been introduced into the business world -- where it is enjoying considerable success.

Games may be extremely simple, requiring only a few guidelines, forms, and an afternoon to be played. Or they might be highly complex -- requiring several weeks and the availability of automated data handling facilities and computers to complete.

It occurred to us in OPD that the multiple use resource management decision-making process was highly susceptible to simulation in a game of some sort, and that a game might be designed as a useful training aid.

Considerable thoughtwas given to this subject. Gerald Hillier, a participant in the Department's Middle Management Training Program became available to OPD on assignment, and expressed interest in trying to actually build such a game, based upon the concepts and framework type guidelines we had developed.

The result was most interesting and follows this preface. I think Mr. Hillier has done an excellent job, and that his game, with some further staff review and refinement, might be a most useful part of a well-structured training program for prospective Area Managers. It is not intended to indicate policy or approved "school solutions" for on-the-ground situations. The danger of this type of interpretation is a deficiency of the management game technique and is why it must be very carefully used.

We sincerely appreciate Mr. Hillier's excellent staff work.

Robert A. Jones

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RESOURCE INVESTMENT GAME

The following games were developed in response to several needs. Among these are:

(1) To introduce the concept of packaging component resource development projects and investment opportunities into groups.

(2) To provide training for resource managers in considering alternatives, weighing choices, and evaluating benefits in more than a single use context.

The term "game" has an unfortunate connotation. At first thought many may reject the idea of using this "game", as any "game", as having any value in training resource managers. Perhaps the term "simulation" might be better.

The Resource Investment Game, attached, has two parts. The first, called the Introductory Game, deals only with weighing given sets of conditions with objectives, and arriving at a priority ranking for planning.

The second, or main, game is called the Resource Investment Game. It is played in six cycles, and offers the players an opportunity to invest in various resource development schemes. In them, it is assumed that planning has been completed on three of the four units described in the Introductory Game. The player may choose among packages of land treatments, land management, and planning in additional units. Of course, in a "real world" situation, many more packages, and alternatives, would be considered by the land manager. We have attempted to keep the game simple, while including enough situations to insure variation among players.

INTRODUCTORY GAME

Leader's Instructions

Purpose

The purpose of this game is to:

(1) Familiarize participants with gaming.

(2) To familiarize players with ranking and weighing competing land use problems and situations with a given set of objectives, and priorities, and evaluating their reasons for the ranking selected.

It is not intended as an operating procedure to be implemented in District Offices. There is no "school solution".

Procedure

(1) This game may be played individually, or with 2 or 3 players making up a team. If played by a team, members must consult among themselves and arrive at a team decision. If played individually, there must be no discussion among players after the Game Information Sheet is handed out.

(2) Give each player, or team, the Instruction Sheet for players.

(3) The Instruction Sheet for Players contains the assumptions, and objectives. Each player, or team, should review the instructions.

(4) The leader may answer any questions the participants may have concerning the instructions.

(5) Give each player, or team, the Game Information Sheet. No questions may be answered.

(6) Players, or team, will have 10 minutes to arrive at a decision. The answer must be written on the blank sheet, listing each of the four units, in the priority order in which they should be planned.

(7) After completion of the game, the players or teams should be reassembled for a discussion of the answers. Each player, or team representative, will present to the group the answer presented, telling WHY and HOW the order given was selected.

(8) After the discussion, the leader should then introduce the concept of ranking and weighing. The object of this game is not necessarily to get the "correct" answer. There is no single correct answer. The object of the game is to get the participants to make a decision, indicate why they made it, and to compare the reasoning used.

For example, a possible decision might be to rank the units B-D-A-C, for initiation of planning, based upon this weighing of the various decision factors.

	Unit A	Unit B	Unit C	Unit D
Watershed Condition	4	3	3	1
Vegetative Condition	3	2	2	1
Water Use	1	2	1	1
Need for Management	2	2	1	3
Need for Developments to restore grazing reduction	2	2	0	1
Wildlife Needs	0	1	1	3
Recreation demands and need for development	0	2	0	3
	12	14	8	13

These weights are subjective, but reflect, in quantitative terms, the decision-makers thinking and judgment process as he considered the data on the Game Information Sheet and made his decision.

(9) The concept of overall numerical weighing of alternatives, or assigning a "util" value, is used in the next game, with util values for various alternatives prescribed in the game data sheets.

INTRODUCTORY GAME

Participants Instructions

Purpose

The purpose of this game is to:

(1) Familiarize participants with gaming.

(2) Familiarize players with objectively and quantitatively weighing alternatives, and based on objectives, set priorities for planning.

Procedure

(1) Review the assumptions and objectives on the attached sheet. You may ask questions of the leader.

(2) The leader will hand out the Game Information Sheet. No questions will be answered concerning this information.

(3) Each player, or team will consider the situations listed on the Game Information Sheet, and rank the units in order in which they feel planning should be done.

(4) After selecting the order, list the four units on the answer sheet.

(5) Each player, or team should be prepared to discuss with the group, after the game, the reasons for his, or their, placement.

(6) Time limit is 30 minutes.

(7) Do not destroy, or throw away, the Game Information Sheet. It may be used in the future game.

Assumptions

(1) Limited funds and manpower are available. It is possible to plan in only one unit at one time. Thus the need for setting priorities for planning.

(2) Unit resource analysis (present situation) is completed.

(3) Classification (Classification and Multiple Use Act) is completed. Units have been classified for retention.

(4) Range adjudication is complete.

(5) No functional plans (watershed, grazing, timber management, etc.) have been done.

(6) That no investment in the unit can be made until planning is completed.

Objectives

(1) To concentrate expenditures in areas of greatest need.

(2) Soil and watershed protection, improvement, and rehabilitation is a primary goal of fund expenditure.

(3) Restoration of grazing reductions is a secondary goal, but creation of Class 2 forage will not be permitted, unless it is to increase vegetative cover for watershed protection.

(4) Recreation developments will be located in areas of need, close to population centers, before being constructed at distant locations.

(5) Resource Management -- control of grazing use, and planned harvest of timber is a primary goal.

INTRODUCTORY GAME

Game Information Sheet

Unit A

Size: 150,000 acres, of which 125,000 is public land.

Watershed Condition: Severe erosion (gully and sheet). Unit has been designated as frail land.

Vegetative Condition: Classed as low fair to poor.

Water: Runoff utilized, with other sources, for irrigation.

Grazing Use: Common use area, sheep and cattle March to November. Use reduced by 50% to 6000 AUM's.

Forest: None commercial, some juniper woodlands.

Wildlife: Small antelope herd, year long; some deer cross unit going from winter to summer range.

Recreation: Very light use, a few deer hunters.

Location: 50-80 miles from urban population center.

Limitations: Heavy clay soil, alkaline, 8 to 10 inch precipitation.

Unit B

Size: 300,000 acres, of which 200,000 is public land.

Watershed Condition: Moderate erosion -- localized gullies, some sheet.

Vegetative Condition: Generally rated fair (low good to high poor)

Water: Runoff used, with other sources, for irrigation and municipal.

Grazing Use: Common use area, sheep and cattle, April to October. Use reduced by 40% to 20,000 AUM's.

Forest: None

Wildlife: Antelope, deer, small numbers.

Unit B (Continued)

Recreation: Light-hunting, rockhounding.

Location: 12 to 30 miles from urban population center.

Limitations: Shallow soils, rocky. 7 to 10 inches precipitation.

Unit C

Size: 250,000 acres, of which 225,000 is public land.

Watershed Condition: Moderate erosion throughout, mostly sheet.

Vegetative Condition: Fair (ranges good to low fair).

Water: Runoff used, with other sources, for irrigation.

Grazing Use: Individual allotments. Cattle April to October. Use reduced by 10% to 32,000 AUM's

Forest: Scattered juniper woodlands.

Wildlife: Small number of deer and antelope, year long.

Recreation: Light use -- hunting.

Location: 20-40 miles from urban population center.

Limitations: Variable soils, mildly alkaline, 8 to 12 inches precipitation.

Unit D

Size: 200,000 acres, of which 150,000 is public land.

Watershed Condition: Localized gully erosion, otherwise slight.

Vegetative Condition: High fair (ranges high good to fair).

Water: Runoff used, with other sources, for irrigation.

Grazing Use: Common use -- cattle May to September; sheep October to January. Use reduced by 15% to 20,000 AUM's.

Forest: Commercial timber -- 3mm bf allowable cut, scattered aspen and juniper woodlands.

Unit D (Continued)

Wildlife: Some deer yearlong, heavy use during winter, classed as crucial area. Browse in fair to poor condition.

Recreation: Moderate use -- hunting.

Limitations: High potential for vegetative treatments, 10 to 16 inches precipitation.

Location: 10-30 miles from urban population center.

RESOURCE INVESTMENT GAME

Leader's Instructions

Introduction

The purpose of this game is to make participants aware of alternatives in selection of natural resource investment opportunities, to weigh such factors as costs, expected benefits, and chances of success. It may also make them aware of multiple benefits that can accrue from various types of projects.

The game does not follow true game theory in that there is no "best" solution. A matrix or mini-max solution cannot be determined, nor is there action and reaction. The conflict situation is simply: Who, among the players, can make the best decisions on the expenditure of funds, given the same assumptions, values, and other constraints.

The game is developed in a partial "real world" context: Costs used are close approximations to some actual experiences; the projects proposed are not unreasonable for the types of lands and resources BLM manages, or for the lands described in the various units in the Introductory Game; and the participants will operate within a budget limitation.

It is expected that the participants will have some advance knowledge of resources and BLM operations, including:

--- The concept of packaging -- that of combining several complimentary practices and projects into one "package" for decision-making.

--- Various resource development measures, including seeding, contour furrowing, detentions, etc.

--- What a grazing management system is, as opposed to a simple individual allotment.

--- Cooperative relations between BLM and State Game Departments.

--- Land exchanges and public sales.

It is suggested that the Leader review these concepts, and any others he feels necessary, in advance of the game, so that all participants have an equal opportunity.

No attempt has been made in this game to introduce detailed economic criteria such as discounting future benefits, present worth, or marginal utility (cost-utility analysis). The players, though, may use a benefit analysis such as determining which packages have the best cost per util of benefit. They should be left on their own to find this out during the game, and also that by buying packages with risky projects (50% or lower risk factors) sometimes pays handsomely, other times the entire investment is lost.

Procedure

(1) It is vitally important that all participants approach the game with a positive attitude. They must be aware that what they are doing is not for their amusement, but for training and awareness.

Participants may be divided individually, each playing for himself, or they may be divided into teams of 2 to 3 players. A team approach is preferable to allow a greater interchange of ideas.

(2) Hand out instruction sheets to the players and a sample budget allocation sheet.

(3) Review instructions with players, including definition of terms, object of the game, and the objectives of the resource investment. The objectives and assumptions are the same as used in the Introductory Game.

(4) You may use Investment Package Sheet #1 for an example. Run through the completion of the Budget Allocation Sheet with the players.

(5) Hand out Investment Package Information Sheets #1 to #10, and Planning Package Information Sheets #1 to #3. In addition, give each player or team a Budget Allocation Sheet and a pad of scratch paper. The players, or teams should be separated (separate room is preferable) for the duration of the game. Since the object of the game is to win the most utils of benefits, no information should pass among them.

(6) The time limit for each cycle is minutes.

(7) At the end of Cycle #1, check the Budget Allocation Sheets for correct addition and tally of benefits. Check the Leader's Inventory of Information Sheets against the packages purchased. At the beginning of Cycle #2, give each player or team any additional Information Sheets he is due because of purchasing a plans package during Cycle #1.

Also give each player or team any change or addition sheets due (indicated by "1st after investment").

Check the Inventory to ascertain if a budget reduction is warranted.

(8) Enter the results of the players or team's budget allocation and benefits on the Leader's Control Sheet. The information required on this sheet will serve as a check for the Leader whether Change or Addition Sheets are due, and which ones, and the number of alternatives involved.

(9) Before beginning Cycle #2, it might be well to group the participants to answer any general questions, and to be sure that they understand the need for future investment and O&M costs in those packages purchased in Cycle #1.

(10) After Cycle #2 repeat Steps No. 7 and 8, above. Be sure that players have added the necessary O&M expenses to their budgets. The Leader's Inventory indicates changes in benefits resulting from the selection of various alternatives by the players. The amount of benefit shown on the Package Information is the total benefit that will accrue from the package over time. Benefits from the first year's investment are assumed to be the total shown. They are carried forward each year, but are not added together. For example, if Package #1 is purchased in Cycle #1, the benefit from it is 52 utils. Benefit from Investment and O&M during the 2nd Cycle merely maintains the 52 utils of benefit. It does not make the total benefit 104 utils.

The expected total benefits column indicates what changes result from the change or addition sheet, depending on the alternative selected. A parenthesis indicates investment done to retain the benefit of previous investment. For example, if Package #1 was bought the first cycle, change or addition sheet 1-1 would be given the player in Cycle #2. This gives him two alternatives. If Alternative #1 is chosen, the benefit from the package drops from 52 to 34. (The number 34 is entered in the benefits column

of the Budget Allocation Sheet by the player in his Cycle #2 submission.) In Cycle #3 the player is given Change or Addition 1-2. If alternative 1 is selected, and alternative 1had been selected during Cycle #2, the benefit is now 32 utils. On the other hand, if Alternative 2 is selected, and Alternative 2 had been selected in Cycle #2, the benefit remains at 52 utils. In Cycle #5, the player is given change or addition sheet 1-3. If he chooses alternative 1, and had selected alternative 2 in both cycles 2 and 3, the total benefit from the project is 45 utils. (Package #1 is the most complex of the entire game.)

(11) The game is designed to run for 6 Cycles, though it may be shortened. It is suggested that it run for no less than 4 Cycles.

(12) The winner of the game is the player or team having the greatest total of utils in the box on Budget Allocation Sheet at the end of the last cycle.

(13) At the completion of the game, there should be an opportunity for discussion. Subjects might include "sunk costs", or refinements in economic analysis, cost-benefit ratios, and scale of investment. Only the sunk costs feature is included in this game.

RESOURCE INVESTMENT GAME

Participant's Instructions

Purpose

The purpose of this game is to familiarize you with several concepts, some of which are new to BLM. The first is to analyze alternative investment possibilities, within budget limitations, and to make decisions using anticipated benefit as a major criteria. Second is to learn to see and work with a "packaging" concept -- that of grouping several complimentary land treatment projects together for decision-making. Third is to anticipate and consider future problems and costs which may occur after the initial investment is completed.

Assumptions

The game will assume that you, or your team, are in a BLM District with 8 units. Four of the units are those described in the Introductory Game. Two additional units, E and F, which are also Type I units, will be introduced later. Two Type II units, N and O, will also be introduced later.

The game is divided into a number of cycles, corresponding to a budget, or fiscal year. You will not know the number of cycles in advance.

For each cycle you will be given a budget allocation, and a choice among various resource investment opportunities. Each investment opportunity is called a package. You may "purchase" as many packages as your total budget may allow.

The object of the game is to maximize the benefits, (rated in utils, as a numerical measure of total benefit) within your budget limitations.

Definitions

Some terms are used on the Investment Package Information Sheets which may be unfamiliar to you. Among these are:

Installation Cost -- This is the cost of survey, design, and all costs of construction.

Annual O&M -- This is the expected cost of operating and/or maintaining the project in a serviceable condition. It does not include reconstruction or repair of major damage. Many projects have no O&M cost listed. They would be expected to be used until they needed replacement (as a stockwater pond), or maintained by management (as a tree planting project).

Risk -- This term is used here to indicate the expected chance of success. A project with a high degree of success, or no difficulty in its completion and operation may have a factor of 90% or none listed. More "chancy" projects may have a risk factor of 40 or 50 percent.

Benefits -- Benefits from a project cannot always be weighed in dollars. Various "util" values have been assigned to the various benefits that can accrue from a project or package of projects. The type of benefit shown, watershed, wildlife, etc., is for your information only. For the purpose of this game, 1 (one) util of watershed benefit equals 1 (one) util of any other type of benefit.

Procedure

(1) Review the instructions carefully. If you have any questions concerning them, ask the Leader in advance of the game. No questions will be answered after the beginning of the game.

(2) At the beginning of Cycle 1 you will be given 10 Investment Package Information Sheets, each representing a separate group of projects in various units.

(3) Your total budget for the Cycle will be $200,000.

(4) You must choose among the various packages, based on the objectives, those which will yield the maximum benefit. The total cost of the packages may not exceed the $200,000 limitation. (Though you may find it necessary to spend slightly less.)

(5) Beginning in Cycle #1, you will also have available for purchase 3 plans packages. These, too, must be purchased within the $200,000 budget limitation. In other words, if you decide to purchase one or more plans packages in anticipation of getting additional investment packages for consideration in future cycles, you must forego some investment.

(6) An investment package once begun must be completed, unless you receive information in a following cycle of an adversity which prevented installation of the first phase. Thus, if the Estimated cost requirements show expenditures are needed over a three-year span, you must plan so as to be able to make the indicated investment in each year (cycle).

(7) After you have decided upon which packages you will "buy" complete the Budget Allocation Sheet, indicating the investment cost for that year, and the total benefits expected from the package.

(8) No O&M costs will be required during the first year of investment; however, the total amount indicated for O&M is required for each package purchased in subsequent years. For example, if you buy package #1 in the first cycle, you must invest $76,000 during that cycle. In the second cycle, you must invest $110,000 plus $2200 for O&M, a total of $112,200, leaving your 87,800 for investment in other packages.

(9) After the first cycle is completed, hand in the Budget Allocation to the leader. He will check your addition and tally of benefits.

(10) In the second, and subsequent cycles you will have available all of the investment and planning packages you had the previous game. In addition, you may, if you purchased one or more planning packages, have additional investment packages to consider. You may also receive, as the game proceeds, Change or Addition Sheets which will report on successes or failures of your previous investments, and needs for additional investments.

In each cycle after the first, you will first make the necessary allocation to O&M for previous investments. You will then allocate the needed expenditures to complete packages you are committed to complete. You may then, with your remaining budget, decide which packages to invest in, complete the Budget Allocation Sheet within the time allowed, and hand it in.

(11) As the game progresses you will find two types of penalties. The first is based on latter evaluations of a project, and results in a loss of benefits (utils) which had been expected.

The second type of penalty may result from selecting the "wrong" package. Carefully examine each package in terms of the objectives, the conditions presented, and the need. The penalty assessed will be a reduction in your budget allotment in the succeeding cycle.

(12) The time limit for each cycle is minutes.

LEADER'S INVENTORY OF INVESTMENT PACKAGE INFORMATION SHEETS AND CHANGE OR ADDITION SHEETS

	Cycle made available	Expected total benefits
Investment Package #1	1	52
Change or Addition 1	1st after invest.	34 Alternative 1 (52) Alternative 2
Change or Addition 2	2nd after invest.	50 or 32 Alternative 1 (52 or 34) Alternative 2
Change or Addition 3	4th after invest.	Alt 1: 45 or 28 with alt 2 above 43 or 25 with alt 1 above Alt 2: 49 or 31 with alt 2 above 47 or 29 with alt 1 above
Investment Package #2	1	23
Penalty	1st after invest.	#10,000 budget cut if bought before Pkgs #1 and #3
Change or Addition 1	4th after invest.	(22) Alternative 1 (23) Alternative 2
Investment Package #3	1	20
Change or Addition 1	1st after invest.	(19) Alternative 1 21 Alternative 2 23 Alternative 3
Investment Package #4	1	20
Change or Addition 1	3rd after invest.	18 Alternative 1 (20) Alternative 2

	Cycle made available	Expected total benefits
Investment Package #5	1	20
Change or Addition 1	3rd after invest.	(20) (if alt 1 of pkg 4 selected)
Investment Package #6	1	45
Change or Addition 1	2nd after invest.	(45)
Change or Addition 2	3rd after invest.	43 Alternative 1 (45) Alternative 2
Change or Addition 3	5th after invest.	42 or 40
Investment Package #7	1	22
Change or Addition 1	3rd after invest.	20
Investment Package #8	1	18
Change or Addition 1	1st after invest.	(18) Alternative 1 (18) Alternative 2 0 Alternative 3
Change or Addition 2	2nd after invest. (alt 1 above) or 3rd after invest. (alt 2 above)	(18) Alternative 1 16 Alternative 2
Change or Addition 3	3rd after invest.	20 or 18 Alternative 1 19 or 17 Alternative 2 16 or 14 Alternative 3
Investment Package #9	1	4
Penalty	1st after invest.	$10,000 budget cut if bought before pkgs #7 or #8
Change or Addition 1	2nd after invest.	2 Alternative 1 (4) Alternative 2

	Cycle made available	Expected total benefits
Change or Addition 2	4th after invest.	(4 or 2) Alternative 1 2 or 0 Alternative 2
Investment Package #10	1	8
Investment Package #11	1st after Plans Pkg #1	10
Investment Package #12	1st after Plans Pkg #1	7
Change or Addition 1	2nd after invest.	5 Alternative 1 (3) Alternative 2
Investment Package #13	1st after Plans Pkg #2	13
Penalty	1st after invest.	$20,000 budget cut if purchased before Invest. Pkg. #5
Investment Package #14	1st after Plans Pkg #2	
Alternative A		4
Alternative B		10
Investment Package #15	1st after Plans Pkg #2	28
Change or Addition 1	1st after invest.	6 Alternative 1 (28) Alternative 2
Investment Package #16	1st after Plans Pkg #2	24

	Cycle made available	Expected total benefits
Change or Addition 1	1st after invest.	22 Alternative 1 (24) Alternative 2
Also must include $3,000 additional investment. Lose 1 utilized benefit each year past this year investment delayed.		
Change or Addition 2	2nd after invest.	(24)
Investment Package #17	1st after Plans Pkg #2	34
Change or Addition 1	1st after invest.	32 Alternative 1 (34) Alternative 2 22 Alternative 3
Change or Addition 2	2nd after invest.	Alt 1: 29 if alt 1,above, selected 31 if alt 2,above, selected 21 if alt 3,above, selected Alt 2: 17 if alt 1,above, selected 19 if alt 2,above, selected 14 if alt 3,above, selected Alt 3: (32) if alt 1, above, selected (34) if alt 2, above, selected (22) if alt 3, above, selected
Change or Addition 3	3rd after invest.	(32, 34, or 22)
Investment Package #18	1st after Plans Pkg #3	3
Change or Addition 1	1st after invest.	(3) Alternative 1 2 Alternative 2

	Cycle made available	Expected total benefits
Change or Addition 2	2nd after invest.	(3 or 2, depending on alternatives selected above)
Investment Package #19	1st after Plans Pkg #3	7
Investment Package #20	1st after Plans Pkg #4 and change A	26
Investment Package #21	1st after Plans Pkg #4 and change A	12
Investment Package #22	1st after Plans Pkg #5 and changes A and B	33

LEADER'S INVENTORY OF PLANS PACKAGES INFORMATION SHEETS AND CHANGES OR ADDITION SHEETS

Plans Package No.	Cycle made available	No. of investment packages resulting
Plans Package #1	1	2--#11 and #12
Plans Package #2	1	5--#13 thru #17
Plans Package #3	1	2--#18 and #19
Plans Package #4	2	
Change or Addition A	1st after purchase	2--#20 and #21
Plans Package #5	3	
Change or Addition A	1st after purchase	
Change or Addition B	2nd after purchase	1--#22

INVESTMENT PACKAGE #1 -- BASIC DATA

Watershed Rehabilitation -- Unit A
Establish Grazing Management System

Projects	Installation Cost	Annual O&M	Risk (if any)
60 miles fence	60,000	1,000	
200 check dams	100,000		.70
20 detentions	20,000		
20,000 acres broadcast seeding	80,000		.50
2 wells	6,000	200	.90
10 miles pipeline with 6 outlets	10,000	1,000	
	276,000	2,200	

Estimated Cost Requirements

	1st year	2nd year		3rd year		4th year
Fence	60,000	check dams	50,000	check dams	20,000	check dams-- 30,000
Wells	6,000	detentions	20,000	seeding	40,000	
Pipeline	10,000	seeding	40,000		80,000	
	76,000		110,000			

Benefits

20 utils forage
26 utils watershed
6 utils wildlife
52 utils total

Change or Addition
Sheet 1-1

INVESTMENT PACKAGE #1

2nd year

Wells are unsuccessful, produce only enough water for the single site, not enough to supply pipeline.

Alternatives

(1) Complete package without the pipeline and 6 outlets. Benefits from completed package would now be:

5 utils forage
26 utils watershed
3 utils wildlife
34 utils

(2) Provide substitute water in six stock water reservoirs. Add 8,000 to 2nd year investment cost -- new total 118,000. Retain full benefits.

INVESTMENT PACKAGE #1

3rd year

Seeding costs increase by 10,000, to 90,000 (45,000 each year)

Alternatives

(1) Reduce acreage to 16,000, and retain 80,000 total cost. Lose 1 utils of forage, 1 util of watershed

(2) Meet increased cost in 3rd and 4th years.

PRODUCTION PACKAGE #1

5th year

Evaluation of broadcast seeding reveals only 50 percent success.

Alternatives

(1) Do nothing. (No investment -- lose 7 utils)

(2) Reseed by broadcast methods areas in which the seeding is least successful. Investment 20,000. Lose 3 utils instead of 7. (Risk 50%)

INVESTMENT PACKAGE #2

Forage production and watershed improvement -- Unit A

Projects	Installation Cost	Annual O&M	Risk (if any)
10,000 acres seeding	80,000		.80
25 miles fence	25,000	500	
8 reservoirs	8,000		.60
	113,000	500	

Estimated Cost Requirements

1st year		2nd year	
Fence	25,000	Seeding (plow and drill)	80,000
Reservoirs	8,000		
	33,000		

Benefits

12 utils forage

10 utils watershed

1 utils wildlife

23 utils

Change or Addition
Sheet 2-1

PRODUCTION PACKAGE #2

5th year

Three (3) reservoirs work out.

Alternatives

(1) Do nothing -- lose 1 util

(2) Rebuild reservoir -- investment 3,000. Retain 1 util of benefit.

INVESTMENT PACKAGE #3

Woodland Conversion - Watershed Rehabilitation and Forage Production -- Unit A

Projects	Installation Costs	Annual O&M	Risk (if any)
5000 acres chaining, piling and burning	100,000		
10 miles fence	10,000	200	
4000 acres seeding	16,000		.80
20 check dams	10,000		.60
5 reservoirs	5,000		.70
	141,000		

Estimated Cost Requirements

1st year		2nd year	
Chaining	100,000	Seeding	16,000
Fence	10,000	Checks	10,000
	110,000	Reservoirs	5,000
			31,000

Benefits

8 utils forage
14 utils watershed
-2 utils wildlife
20 utils

Change or Addition
Sheet 3-1

INVESTMENT PACKAGE #3

2nd year

Fire burning piled juniper escapes, burning 1500 acres of which 1000 can be seeded, but was not planned in original seeding project.

Alternatives

(1) Do nothing depending upon natural vegetation. Lose 1 util.

(2) Construct 3 miles of fence management separately from main treated area and area outside of project. Allow for natural revegetation.

Installation cost: 3,000
Annual O&M cost: 100
Benefit: + util watershed

(3) Construed 3 miles of fence. Reseed.

	Installation cost	Annual O&M
Seeding	8,000	
Fence	3,000	100
	11,000	100

Benefits

2 utils watershed
1 util forage
3 utils

Available Cycle #1

INVESTMENT PACKAGE #4

Watershed improvement and rehabilitation -- Unit B

Projects	Installation Cost	Annual O&M	Risk (if any)
3000 acres contours furrowing	30,000		.90
20 detentions	20,000		.80
10 miles fence	10,000	100	
	60,000		

Estimated cost requirements

	1st year
Contouring	30,000
Detentions	20,000
Fence	10,000
	60,000

Benefits

20 utils watershed

Change or Addition
Sheet 4-1

PRODUCTION PACKAGE #4

4th year

Three detentions work out during 3rd year.

Alternatives

(1) Do nothing. Lose 2 utils of benefit.

(2) Replace at cost of 3,000. Retain 2 utils of benefit.

NOTE: If production package #5 has been purchased, and alternative 1 above is selected, package #5 maintenance costs will increase by 500 per year because of need to dragline the reservoir.

INVESTMENT PACKAGE #5

Recreation Development -- Unit B
Area of Low recreation carrying capacity, within 15 miles of city of 50,000.

Projects	Installation Cost	Annual O&M	Risk
Access Road	40,000	400	
50 unit camp and picnic ground	40,000	5,000	
Dam	20,000	100	.70
	100,000	5,500	

Estimated Cost Requirements

	1st year	2nd year	
Road	40,000	25 units	19,000
25 Units	21,000		
Dam	20,000		
	81,000		

Benefits

20 utils recreation
1 util watershed
-1 util forage
20 utils

Expected Use -- 20,000 visitor days per year

NOTE: To protect investment, especially the reservoir, Package #4 must be bought the previous or same cycle as this package.

Change or Addition
Sheet 5-1

PRODUCTION PACKAGE #5

4th year (if Alternative 1 of Package #4 is selected)

Maintenance costs increase by 500 per year.

No alternative except to increase budget allocation.

Available Cycle #1

INVESTMENT PACKAGE #6

Watershed Rehabilitation, Game Habitat Improvement, and Forage Development -- Unit B
Establishment of Grazing Management System

Projects	Installation Cost	Annual O&M	Risk (if any)
60 mile fence	60,000	1,000	
20 reservoirs	20,000		.80
20,000 acres brush spray	80,000		.90
10,000 acres seeding (plow and drill)	100,000		.80
2,000 acres bitter-brush seeding	20,000		.40
50 check dams	25,000		.60
	305,000	1,000	

Estimated Cost Requirements

1st year		2nd year		3rd year	
Fence	60,000	reservoirs	4,000	reservoirs	16,000
Seeding	30,000	brush spary	60,000	brush spray	20,000
	90,000	seeding	20,000	seeding	50,000
			84,000	bitterbrush seeding	20,000
				check dams	25,000
					131,000

Benefits

18 utils forage
20 utils watershed
7 utils wildlife
45 utils

Change or Addition
Sheet 6-1

PRODUCTION PACKAGE #6

3rd year

Contract price of bitterbrush seeding has increased over estimate by 5,000. There is a commitment to the Game Department to do this project if the brush spray was done (three-fourths was completed last year). No alternative except to allocate 5,000 of budget to this project.

Also, 100 antelope have died during the winter in a corner of one of the fences. Decision made to construct antelope passes and otherwise make modifications in the fence. Cost 3,000.

NOTE: There is no additional benefit from these additional expenditures.

PRODUCTION PACKAGE #6

4th year

Check dams along a main drainage have filled with silt.

Alternatives:

A. Do nothing -- loose 2 utils

B. Clean, or reconstruct where necessary

Cost -- 10,000
Benefit -- Retain the 2 utils of benefit

INVESTMENT PACKAGE #6

6th year

Evaluation made of bitterbrush seeding. Project rated as a 60% success. Loose 3 utils of wildlife benefits.

INVESTMENT PACKAGE #7

Forage Improvement -- Install grazing management system
in crucial deer winter range -- Unit D

Projects	Installation Cost	Annual O&M	Risk (if any)
30 mile fence with lay down panels	40,000	1,000	
1 well	3,000	200	.90
10 miles pipeline with 10 outlets	10,000	1,000	
1000 acres seeding (plow and drill with grass-sweetclover mix)	10,000		.70
	63,000	2,200	

Estimated Cost Requirements

	1st year	2nd year
Fence	40,000	seeding 10,000
Well	3,000	
Pipeline	10,000	
	53,000	

Benefits

15 utils forage
3 utils watershed
4 utils wildlife
22 utils

4th year

Evaluation of seeding determines an 80% success. Loose 2 utils.

INVESTMENT PACKAGE #8

Watershed Rehabilitation with Grazing Management System
Unit D

Projects	Installation Cost	Annual O&M	Risk (if any)
4 miles division fence	4,000	200	
20 miles allotment fencing	20,000		
50 check dams	25,000		.80
10 reservoirs	10,000		.80
10,000 acres brush spray	40,000		.90
	99,000	200	

Estimated Cost Requirements

	1st year	2nd year		3rd year	
Division fence	4,000	allotment fence	20,000	checks	15,000
		check dams	10,000	brush sp.	10,000
		brush spary	30,000	reservoirs	5,000
		reservoirs	5,000		30,000
			65,000		

Benefits

8 utils forage
12 utils watershed
-2 utils wildlife
18 utils

NOTE: Sensitivie -- entire package has a 60% risk factor. Sheep users oppose division fence and may appeal. Game Department opposes brush spraying.

Change or Addition
Sheet 8-1

INVESTMENT PACKAGE #8

2nd year

Sheepmen appeal fence as expected. Entire package implementation set back 1 year. Appeal has been settled. Funds for first year project (fence) lost.

Cost requirements:

Alternative A:

2nd year -- 69,000 (by combining original 1st and 2nd years)
3rd year -- 30,000

Alternative B:

2nd year -- 4,000
3rd year -- 65,000
4th year -- 30,000

or, entire package may be dropped.

PRODUCTION PACKAGE #8

3rd year (if Alternative A on Change Sheet 8-1 selected)

4th year (if Alternative B on Change Sheet 8-1 selected)

Contract layout, supervision, and performance costs for second phase of brush spary increase by 5,000.

Alternative A:

Meet increased costs. Retain full benefit from package.

Alternative B:

Drop second phase of brush spary, saving the 10,000 originally estimated plus the increased cost.

Altered Benefits

7 utils forage
11 utils watershed
-1 util wildlife
16 utils

PRODUCTION PACKAGE #8

4th year

Utilization studies reveal insufficient water developed in allotment for satisfactory implementation of the grazing system.

Alternative 1:

Construct 10 reservoirs -- cost 10,000

Benefit: 2 utils (1 watershed, 1 wildlife)

Alternative 2:

Construct 3 reservoirs -- cost 3,000

Benefit: 1 util

Alternative 3:

Do nothing. No investment cost but loose 2 utils of forage benefit.

INVESTMENT PACKAGE #9

Division of fenced individual cattle allotment into two pastures -- Unit D

Projects	Installation Cost	Annual O&M	Risk (if any)
3 miles fence	3,000	100	
2 reservoirs	2,000		.90
500 acres seeding (plow and drill)	5,000		.80
	10,000	100	

Estimated Cost Requirements

	1st year
Fence	3,000
Reservoirs	2,000
Seeding	5,000
	10,000

Benefits

3 utils forage
1 util watershed
4 utils

PRODUCTION PACKAGE #9

3rd year

Reservoirs wash out. Replace at cost of 3,000 or loose 2 utils.

PRODUCTION PACKAGE #9

5th year

Seeding invaded by rabbitbrush. Spray at 4.00/acre ($2,000) or loose 2 utils of watershed benefits from seeding.

INVESTMENT PACKAGE #10

Forest development and watershed improvement -- Unit D

Projects	Installation Cost
500 acres scarification, piling slash, burning	10,000
Broadcast seeding of old skid trails, road cuts	2,000
	12,000

Estimated Cost Requirements

	1st year
Scarification	10,000
Seeding	2,000
	12,000

Expected Benefits

5 utils forest production (in 80 years, from natural regeneration)
2 utils watershed
1 util wildlife
8 utils

Available Cycle Following
Purchase of Planning
Package #1

INVESTMENT PACKAGE #11

Watershed Rehabilitation -- Unit C

Projects	Installation Cost	Annual O&M	Risk (if any)
50 check dams	25,000		.60
10 miles fence	10,000	200	
2000 acres seeding	16,000		.80
	51,000	200	

Estimated Cost Requirements

	1st year		2nd year
fence	10,000	checks	25,000
		seeding	16,000
			41,000

Benefits

5 utils forage
5 utils watershed
10 utils

Available Cycle Following
Purchase of Planning
Package #1

INVESTMENT PACKAGE #12

Watershed rehabilitation with grazing management system on an individual allotment -- Unit C

Projects	Installation Cost	Annual O&M	Risk (if any)
10 detentions	10,000		.80
3 reservoirs	3,000		.50
Spring development and pipeline - 2 outlets	1,000	100	
2500 brush spray	10,000		.90
12 miles fence	12,000	200	
	36,000	300	

Estimated Cost Requirements

	1st year		2nd year
fence	12,000	detentions	10,000
brush spray	10,000	reservoirs	3,000
	22,000	spg. and pipe	1,000
			14,000

Benefit

5 utils watershed
2 utils forage
7 utils

Change or Addition
Sheet 12-1

INVESTMENT PACKAGE #12

2nd Cycle After Purchase

Reservoirs fail to hold water in pourous soil (50% risk assigned to project in beginning). Repair, or loose 2 utils -- 1 forage and 1 watershed. Repair to be done by sealing with bentonite. Cost -- 4,000.

Available Cycle Following
Purchase of Planning
Package #2

INVESTMENT PACKAGE #13

Recreation Development -- Unit E
(Timbered area on live stream, located 60 miles from city of 50,000, 40 miles from city of 10,000.)

Projects	Installation Cost	Annual O&M	Risk (if any)
Access road	40,000	1,000	
50 unit campground	50,000	5,000	
	90,000	6,000	

Estimated Cost Requirements

	1st year		2nd year
road	40,000	campground	50,000

Benefits

15 utils recreation
-2 utils timber production
13 utils

Expected usage 9000 visitor days per year

NOTE ON INVESTMENT PACKAGE #14

This package involves the selection between two alternatives, or not buying the package at all (not selling the timber).

If package 14A is purchased, the purchase of package #13, the recreation development is possible.

If package 14B is purchased, recreation development, will not be possible for at least 10-20 years.

No util values have been assigned to the revenue to the treasury from the sale of the timber. It is left to the player to decide whether the revenue from the timber equals, exceeds, or is less than the social benefit from the expected annual visitation, or whether the campground should be constructed at all. Recognize, though, that there is an economic benefit to the local communities from the sale of the timber.

Available Cycle Following
Purchase of Planning
Package #2

INVESTMENT PACKAGE #14

Timber Sale -- Unit E. Sale possible for same area as recreation development (Package #13).

Alternatives

Package #14A -- Selective cut, no cutting immediately adjacent to proposed campground or along stream -- 2 mmbf.

	Cost	Annual O&M
layout, cruise, sell, supervise contract	8,000	
Access road	(40,000) (no cost to government, construct under sale contract, reduces revenue from sale.)	1,000

Cost Requirements

1st year		2nd year	
layout	6,000	contract supervision	2,000

Benefits

2mmbf @ 15.00/m = $30,000 revenue + 2 utils of employment and economic benefit to local economy

road allowing access -- 2 utils recreation

campground worth 1 util may be constructed

INVESTMENT PACKAGE #14 (Continued)

Package #14B -- Clear cut, leaving seed trees -- 8 mmbf

	Cost	Annual O&M
layout, cruise, sell, supervise contract	12,000	
Access road	(40,000)	

Estimated Cost Requirements

1st year		2nd year	
layout	11,000	supervision	1,000

Benefits

8 mmbf @ 35.00/m = $280,000 revenue + 8 utils of employment and economic benefit to local economy

road allowing hunter access -- 1 util recreation

cutting opening timber stand allowing deer to increase -- $\frac{1}{10}$ util recreation

Available Cycle Following
Purchase of Planning
Package #2

INVESTMENT PACKAGE #15

Forest Development -- Unit E

Projects	Installation Cost	Annual O&M	Risk (if any)
Scarification	10,000		
Tree Planting	20,000		.50
Protective Fences	15,000	600	.80
	45,000	600	

Estimated Cost Requirements

1st year		2nd year	
scarification	10,000	planting	20,000
		fence	15,000
			35,000

Benefits

20 utils forest production (in 80 years)
10 utils watershed
-1 util wildlife
-1 util livestock forage
28 utils

Change or Addition
Sheet 15-1

INVESTMENT PACKAGE #15

1st Cycle After Purchase

Drought and deer do extensive damage to planting.

Alternatives:

1. Do nothing

   loose -15 utils forest production
   - 8 utils watershed
   + 1 util wildlife
   -22 utils

2. Replant, and in addition place wire cages over a selected number of the seedlings. Cost -- 25,000, in order to retain utils of benefit. By replanting this year can get by without rescarifying.

Available Cycle Following
Purchase of Planning
Package #2

INVESTMENT PACKAGE #16

Forage development and watershed improvement -- UNIT E
Installation of a grazing management system.

Projects	Installation Cost	Annual O&M	Risk (if any)
30 mile fence	30,000	600	
10,000 acres brush spray	40,000		.80
8 reservoirs	8,000		.80
2 spring developments and pipeline - 6 outlet	4,000	200	
10 detentions	10,000		.60
Reservoir fencing for wildlife habitat development	5,000	200	
	97,000	1,000	

Estimated Cost Requirements

1st year		2nd year		3rd year	
fence	30,000	spray	20,000	spray	10,000
spray	10,000	spg. and pipe	4,000		
reservoirs	8,000	detentions	10,000		
habitat fencing	5,000		34,000		
	53,000				

Benefits

10 utils livestock forage
11 utils watershed
3 utils wildlife
24 utils

Change or Addition
Sheet 16-1

INVESTMENT PACKAGE #16

1st Cycle After Purchase

1. Pipeline costs increase by 1,000

   Alternatives:

   1. Reduce size of project to extent covered by 4,000 programmed -- loose 2 utils of benefit.

   2. Add 1,000 to budget allocation, retain full benefits.

2. Game Commission has indicated, after fence construction, that laydown panels should be installed on major migration routes. Cost -- 3,000. Loose 1 util for every year's delay in installation past 2nd year.

INVESTMENT PACKAGE #16

2nd Year After Investment

Cost of completing brush spray increase by 2,000. No alternative but to meet it. If not met, will loose 3 utils because of unequal capacities in rotation pastures.

Available Cycle Following
Purchase of Planning
Package #2

INVESTMENT PACKAGE #17

Watershed improvement, forage development -- Unit E

Projects	Installation Cost	Annual O&M	Risk (if any)
20 detentions	20,000		.70
25 miles fence	25,000	500	
5000 acres seeding (plow and drill)	40,000		
2 spring developments	2,000	400	
20 mile pipeline, 15 outlets	20,000		
Sagehen guzzlers	2,000	100	
Access road (reg. to perform work and future maintenance	10,000	400	.90
	119,000	1,400	

Estimated Cost Requirements

1st year		2nd year		3rd year	
fence	25,000	detentions	20,000	pipeline	20,000
springs	2,000	seeding	40,000	guzzlers	2,000
road	10,000		60,000		22,000
	37,000				

Benefits

14 utils livestock forage
12 utils watershed
7 utils wildlife
1 util recreation (from access road)
34 utils

Change or Addition
Sheet 17-1

INVESTMENT PACKAGE #17

1st Cycle After Purchase

Seeding costs increase by 5,000.

Alternatives:

1. Reduce project size by 600 acres, keeping budget allocation for package at 60,000 for this year. Loose 2 util.

2. Add 5,000 to cost of package. Retain all utils.

3. Cancel project. Loose 12 utils. Re-allocate money (40,000 to another package or project.)

INVESTMENT PACKAGE #17

2nd Cycle After Purchase

Pipeline costs increase by 2,000.

Alternatives:

1. Reduce project size by 2 miles and 2 outlets.
   Loose 1 util if Alternative 3 of CA Sheet 17-1 selected,
   or loose 3 utils if alternative 1 or 2 of CA Sheet 17-1
   selected.

2. Drop project -- Reallocate money to another package.
   Loose 8 utils if Alternative 3 of CA Sheet 16-1 selected.
   Loose 15 utils if Alternative 1 or 2 of CA Sheet 16-1
   selected.

3. Increase budget allocation for this package.

INVESTMENT PACKAGE #17

3rd Cycle After Purchase

Access road washes out. Perform major repair work for 4,000.
No alternative.

Available Cycle Following
Purchase of Planning
Package #3

INVESTMENT PACKAGE #18

Land tenure adjustment -- Unit N

(1) Section 8 Exchange: Negotiate, appraise, and consummate an exchange of 10,000 acres of public land for approximately 8,000 acres of private land. Private land is in six ownerships.
Estimated cost -- 10,000

(2) Public Sale: Offer 15 isolated tracts totalling 2,800 acres.
Estimated Cost -- 4,000

Estimated Cost Requirements

	1st year
appraise, sell	14,000

Benefits

2 utils -- reduced cost of management and administration
1 util -- recreation -- acquired lands have better access for hunting
3 utils

After exchange is consummated, a 7 util investment package (package #19) will be able to be installed.

Change or Addition
Sheet 18-1

INVESTMENT PACKAGE #18

1st Cycle After Purchase

Appraisals completed on land exchange, but further negotiation on equal values necessary. Involves additional appraisals involving 300 acres private land and 3 operators.
Estimated cost -- 2,000

Alternative. Drop work. Already completed 6,800 acres of public land for 5,000 acres private land.
Loose 1 util, and opportunity to install Investment Package #19.

PRODUCTION PACKAGE #18

2nd year after purchase

Negotiation continuing for key 2,000 acres involving 1 operator. No alternative but to continue. Cost -- 1,000.

Available Cycle Following
Purchase of Plans
Package #3

INVESTMENT PACKAGE #19

Watershed improvement and wildlife habitat development -- Unit N

Projects	Installation Cost	Annual O&M	Risk (if any)
2000 acres seeding	16,000		.80
3 reservoirs	6,000		.80
500 acres bitterbrush seeding	6,000		.50
4 mile fence	4,000	100	
	32,000	100	

Cost Requirements

	1st year
seeding	16,000
reservoirs	6,000
browse seeding	6,000
fence	4,000
	32,000

Benefits

3 utils watershed
2 utils forage
2 utils wildlife
7 utils

NOTE: This package may not be purchased without prior completion of Investment Package #18.

Available Cycle Following
Purchase of Plans
Package #4
and Change #4A

INVESTMENT PACKAGE #20

Watershed rehabilitation with livestock grazing restrictions -- Unit F

Projects	Installation Cost	Annual O&M	Risk (if any)
200 check dams	100,000		.60
20 detentions	20,000		.60
1,000 acres seeding	10,000		.70
20 miles of fence	20,000	300	
	150,000	300	

Estimated Cost Requirements

	1st year		2nd year
fence	20,000	checks	100,000
		detentions	20,000
		seeding	10,000
			130,000

Benefits

20 utils watershed
5 utils forage
1 util wildlife
26 utils

NOTE: Because of grazing restrictions and proposed changed season of use, livestock operator may appeal. Entire package has risk of 70%.

Available Cycle Following
Purchase of Plans
Package #4
and Change #4A

INVESTMENT PACKAGE #21

Rehabilitation of mine wastes from strip old mining operation.
Improvement of watershed and natural beauty -- Unit F

Projects	Installation Cost	Annual O&M	Risk (if any)
gully plugs - 500 acres	15,000		.50
300 acres contour furrowing	3,000		.70
5 miles fence	5,000	200	
800 acres seeding	24,000		.30
	47,000	200	

Estimated Cost Requirements

All costs during first year -- 47,000

Benefits

8 utils watershed
1 util livestock forage
2 utils wildlife
1 util aesthetics
12 utils

Available Cycle Following
Purchase of Plans
Package and
Changes #5A and 5B

INVESTMENT PACKAGE #22

Recreation development -- Unit O. Development located along river, 30 miles from city of 10,000, 40 miles from city of 50,000.

Projects	Installation Cost	Annual O&M
land exchange	2,000	(required to complete development)
access road	50,000	1,000
100 unit campground	100,000	8,000
80 unit campground	80,000	5,000
	232,000	14,000

Estimated Cost Requirements

	1st year		2nd year
exchange	2,000	access road	10,000
access road	40,000	Camp #1	50,000
Camp #1	50,000	Camp #2	80,000
	92,00		140,000

Benefits

40 utils recreation
-5 utils forage
-2 utils private values
33 utils

NOTE: Entire package has a 70% risk factor because of possibility of reactivation of USBR reservoir proposal.

PLANS PACKAGE #1

Develop plans and production package for Unit C. Inventory and Study completed.

Cost: 5,000 all spent first year

Expect: Investment packages worth 50 utils (30 forage, 20 watershed)

Available Cycle #1

PLANS PACKAGE #2

Inventory, Study and develop plans for Unit E.

Unit E is a large Type I unit having timber, grazing, watershed, recreation, and wildlife values.

Cost: 15,000

Cost Requirements:

Option 1		Option 2	
1st year		1st year	2nd year
15,000	-or-	10,000 (Inv. & Study only)	5,000 (planning)

If Option 2 selected, no production packages received until 3rd cycle.

Expect: Investment packages worth 100 utils

PLANS PACKAGE #3

Inventory, study and develop plans for Unit N.

Unit N is a Type II unit containing a crucial deer winter range and composed of small individual allotments.

Cost: 5,000 all spent first cycle

Expect: Investment packages worth 20 utils.

Available Cycle #2

PLANS PACKAGE #4

Inventory, Study and Plan Unit F

Unit F is a small Type I unit whose administration is complicated by many uses, and a need for trials on whole of mine wastes from potash mining.

Cost: 5,000 -- all first year

Expect: Investment packages worth 50 utils.

Change or Addition
Sheet 4-1

PLANS PACKAGE #4

1st cycle after purchase

Studies need to continue before production packages developed.

Additional Cost: 5,000

PLANS PACKAGE #5

Inventory, Study and Plan -- Unit O

Unit O is a Type II unit having high recreation development potential because of public domain tracks along a line stream within 30 miles of a city. The Bureau of Reclamation has been asked to study the area by downstream water users for possible construction of a dam and irrigation system.

Planning Cost for BLM: 3,000

Risk: 50% (Risk because of unknown finding by U.S. B.R.)

Expected benefit from Packages: 50 utils recreation

Change or Addition
Sheet 5-1

PLANS PACKAGE #5

1st cycle after purchase

USBR reports project feasible. If dam constructed BLM tracts will be inundated. No BLM land on reservoir. BR proposes that state take over recreation.

Funds expended on planning lost.

PIANS PACKAGE #5

2nd cycle

USBR drops plan for dam construction. Investment packages from planning effort again available. Cost to restake developments - 2,000.

Cycle _____

BUDGET ALLOCATION SHEET

Investment Package #	Year of Investment	Installation-Cost--This Cycle	O&M Cost This Cycle	Total Cost	Benefits

Total cost this cycle for investment, benefit thru cycle [ ] [ ]

Planning Package #	Year of Investment	Cost This Cycle

Total cost, this cycle, for planning [ ]

Total cost, this cycle [ ]

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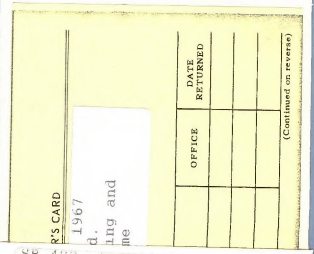

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Hillier, Gerald.
Resource planning and
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